industry has developed for running and walking equipment. In recent years running equipment has advanced significantly to enhance running performance and safety. The runner/walker and manufacturers of relevant equipment are constantly looking for innovations in equipment which will enhance the performance of runners and make the sport less stressful. Additionally, a lot of attention has been given to the need to extend the conditioning benefits of running to those who might otherwise find the activity too demanding and stressful.

Running and walking place significant and repeated strains on joints, tendons, muscles, and the cardiovascular system. While the physical benefits arise from these very phenomena, the intensity of stress puts continuing participation out of the reach of many. While great strides have been made in designing running shoes to absorb some of the shock, the problem remains. Consequently, many runners eventually develop degenerative joint disease of the knee, hip, ankle, or back. The ironic outcome of the vigorous pursuit of healthful exercise through running is that it may ultimately preclude the activity most basic and crucial to health and wellbeing: walking.

Accordingly, runners and walkers have need of a device which could enhance their performance and lessen the strain on their legs.

An analogous performance enhancement assembly is described in U.S. Pat. No. 4,759,570 to Walter Dandy III (inventor of the present invention) for the sport of skiing. It was issued on July 26, 1988. In combination with enhancements covered under U.S. Pats. 5,161,825, etc, this device has succeeded in extending the skiing lives of many who would have been forced to give it up due to the inherent lower extremity requirements of that sport. The very success

and breadth of application of the ski product would indicate the desirability of conferring similar benefits for running and walking.

SUMMARY OF THE INVENTION

Therefore, it is an object of the present invention to provide a system for enhancing the performance and reducing the stresses of a runner or walker.

The present invention transfers part of the weight of a runner/walker to a wheeled vehicle by elastic means. The device is adjustable with respect to height of user and strength of the delivered effect.

As a feature, the device self-steers.

The objects of the present invention are fulfilled by providing an apparatus for shifting the body weight of the runner/walker from the pelvis to the frame and wheels as he ambulates comprising: a spring assembly including a loop of elastic rod-shaped material variably stretched during ambulatory movement; a tee shaped support for two pulleys to support the top bend of the loop positioned above two hooks to secure the base bend of the loop; said tee slides through a tightenable channel to adjust strength of lift and to adjust fit to user; said elastic loop extending over said pulley on said tee and terminating at strap means disposable about the thigh or thighs of a runner's legs whereby said spring means supports a portion of the runner/walker's body weight as a runner/walker ambulates, thereby shifting that portion of body weight from the legs to the apparatus. Steering is variably and adjustably controlled by a magnet, a bungee, and a water-weight.

Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the inventions, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a runner utilizing the performance enhancement system of the present invention.

FIG. 2 shows the harness of Figure 1, including the direct attachment of the elastic bands to the harness, and the integration of a bungee for centering of the user with respect to the wheeled frame.

FIG. 3 shows the tee of Figure 1 with pulleys supporting the upper bend of the elastic, and the height adjusting channel, with securing hardware.

FIG. 4 is a right side elevational view of the wheeled frame of FIG. 1.

Figs. 5A and 5B are side perspective views of the front and back halves of the frame separated and connected, respectively.

FIG. 6 is a top plan view of the wheeled frame.

FIG. 7 is a front elevational view of the wheeled frame.

FIG. 8 is a partial front right perspective view of the steering mechanism of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGs. 1—7, in FIG. 1 a runner is shown in position utilizing the device **100**. The pelvic harness 102 comprises spring means **1** removably attached to the wheeled frame **104**. Prior to describing a preferred embodiment of the invention, it is pointed out that the parts of the wheeled frame assembly may be made of any conventional materials capable of withstanding the rigors of bike riding. The preferred materials are metal, carbon fiber, fiberglass or the like.

The wheeled frame **104** in this embodiment consists of a conventional bicycle steering front end **106** connecting with an encircling frame **108** which encircles the runner and supports the tee **4** and terminates behind the runner in a welded connection to a bicycle fork **110**which secures the trailing wheel **112**.

Fig. 2 shows the harness **102** of Figure 1 in more detailing, including the direct attachment of the elastic bands **1** to the harness **102**, and the integration of a bungee **20** for centering of the user with respect to the wheeled frame **104**.

A quick link **7** attaches each elastic loop **1** to the riveted triangular ring **8** on the harness **102** at the back of each of the runner's legs. A similar harness is shown in U.S. Pat. No. 5,161,825, FIG. 5 A, which shows a waist strap **67** connected to a pair of thigh straps **66** by vertical straps **64**. Thigh straps **66** are connected by strap 23. A bungee cord **20** with hooks **21** at either end passes through the quick links **7**. One hook end includes a length adjustment feature **24**.

Fig. 3 shows the tee **4** of Figure 1 with pulleys **5** supporting the upper bend of the elastic **1,** and the height adjusting channel **116,** with securing hardware **6.** Spring means **1** is a loop

which is removably attached to the wheeled frame **104** by means of a welded hook **2** attached to cross brace **3**. The bends of the loops **1** are supported by a height adjustable tee **4** and move freely on the pulleys **5.** Height adjustability is conferred by a slightly oversized channel and cam disconnect **6** which may be squeezed tight by means of a standard cam operated quick disconnect, of the type employed for the seat height adjustment on most bicycles.

The type of spring means **1** used is not critical to the invention provided that it is capable of bearing upper body weight, and of transferring it to the wheeled frame **104**, bypassing the leg with the weight. For example, other type spring means **1** may be used such as extension springs, compression springs, elastic straps, etc. Additionally, the number of springs and the pound tension is not critical and may be varied according to the needs of the runner.

Fig. 4 is a right side elevational view of wheeled frame **104**. Hands-free steering device **118** is shown in more detail in Figure 8. Height adjustable tee **4** is best shown Figure 3. Disconnect **114** is best shown in Figures 5A and 5B.

Referring to Figures 1—4, the method of using the running device assembly will now be described. In preparation for running the harness **102** is pulled on with thigh straps **66** around the thighs like a pair of shorts, and secured at the waist with the waist strap **67**. With the wheeled frame **104** inclined nearly to the ground, the runner steps into the encircling frame **108**, and raises it just a little to enable stretching the rubber bands **1** over the pulleys **5**, and securing them on the hooks **2**. Righting the device tensions the spring means. The bungee **20** is then extended to the front and hooked over the cross brace **3**. This centers the runner front to back and left to right within the wheeled frame. When running the rubber springs **1** will stretch in response to varying flexure generating forces in opposition to forces generated by

the runner's body weight thereby shifting the upper body weight of the runner from the runner's legs through the spring means **1** to the wheeled frame **104**. The shifting of the upper body weight of the runner to the wheeled frame will reduce the strain on the runner's legs and will reduce fatigue caused by such strain.

FIGS. 5A and 5B are side perspective views of the front and back halves of frame **104** separated and connected by quick disconnect **114**, respectively.

FIG. 6 is a top plan view of wheeled frame **104** of Figure 1. FIG. 7 is a front elevational view of wheeled frame **104** of Figure 1.

FIG. 8 is a partial front right perspective view of the steering mechanism **118** of the present invention. Three modifications to the steering meet the needs of hands free operation **118**. To provide adjustable centering to counter the variable effects of wind and side slope, there is a free sliding Neodymium magnet **9** (or other type of magnet) placed upon a cross member **120** beneath a ferrous metal fender washer **122** which may be raised or lowered by means of the screw **10** securing it to the steering stem. A restraining bungee cord **11** encircles the movable steering stem **124** and the fixed position frame member beneath it to restrain steering swing. A water bottle holder **12** is affixed to contain at least six ounces of water whose activity in motion dampens steering stem and wheel oscillation.

The above-described invention provides a novel and simple device which is easy to use and inexpensive to manufacture. While the preferred embodiments of the invention have been described in detail above, various modifications and variations of the invention are possible in